
Cardiac extracellular matrix proteomics: Challenges, techniques, and clinical implications.

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Public Summary:

Extracellular matrix (ECM) has emerged as a dynamic tissue component, providing not only structural support, but also functionally participating in a wide range of signaling events during development, injury, and disease remodeling. Investigation of dynamic changes in cardiac ECM proteome is challenging due to the relative insolubility of ECM proteins, which results from their macromolecular nature, extensive post-translational modification (PTM), and tendency to form protein complexes. Finally, the relative abundance of cellular and mitochondrial proteins in cardiac tissue further complicates cardiac ECM proteomic approaches. Recent developments of various techniques to enrich and analyze ECM proteins are playing a major role in overcoming these challenges. Application of cardiac ECM proteomics in disease tissues can further provide spatial and temporal information relevant to disease diagnosis, prognosis, treatment, and engineering of therapeutic candidates for cardiac repair and regeneration.

Scientific Abstract:

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